

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Examine the
Commission's Future Energy Efficiency Policies,
Administration, and Programs

Rulemaking 01-08-028

**COMMENTS ON ASSIGNED COMMISSIONER'S RULING
REQUESTING INFORMATION IN RESPONSE TO THE
GOVERNOR'S EXECUTIVE ORDER S-20-04
BY THE CALIFORNIA DEPARTMENT OF GENERAL SERVICES**

The Department of General Services (DGS) is pleased to have the opportunity to offer Reply Comments to the Assigned Commissioner's Ruling on the Governor's Green Buildings Initiative under Public Utilities Code Section 311(g). Specifically, we would like to offer responses to these questions:

- How might California Public Utilities Commission (CPUC)-funded energy efficiency programs be modified or enhanced to help achieve the reductions in per square footage electricity use for commercial buildings, as directed in the Green Buildings Executive Order?
- What funding reallocations could be undertaken during 2005 to further facilitate meeting this goal?

The DGS, through the Building and Property Management Branch (BPMB), owns and operates a diversified portfolio of statewide buildings numbering over two hundred sixty-five (265) buildings totaling over 23 million square feet. The DGS has made considerable investment into the development and implementation of an extensive energy management program that has resulted in a consistent yearly record of savings greater than 20 percent kW savings over the 2000 year benchmark.

The DGS believes that the best methodology to meet the Executive Order requirements of producing and maintaining energy consumption reductions over the long-term are best met by

an integrated approach to smart building operations. This approach would build upon recent and ongoing work supported by California Energy Commission-Public Interest Energy Research (CEC-PIER) and involves three general stages:

- 1) The use of a suite of benchmarking, advanced metering, and performance tracking tools to quantitatively establish energy performance targets and current performance levels; followed by
- 2) Combinations of retro-commissioning and retrofit as needed to achieve desired performance levels; and then
- 3) Implementing an ongoing program of continuous performance tracking, maintenance, and other interventions as needed over time to meet evolving performance targets.

Due to State budgetary constraints, the DGS has incurred significant budget cuts specifically in the areas of overall DGS Operating and Maintenance resources. These cuts have resulted in a diminishing ability for the DGS to adequately respond to the meeting of the goals of an additional 20 percent reduction of energy grid purchases by 2015, as outlined within the executive order. To better enable the DGS to fulfill the implementation of Executive Order S-20-04, the DGS is currently exploring the options of the development of a Statewide Partnership Program between the DGS and other State agencies and the Investor Owned Utilities' (IOU) similar to the University of California/California State Universities/Investor Owned Utilities (UC/CSU/IOU) Energy Efficiency Partnership Program.

A specific area that the DGS intends to develop is a new integrated business approach that addresses energy, demand, and comfort across all phases of the life cycle of the building, i.e. design, construction, and operations. The three key elements include the defining of expected or desired building performance goals, the continuous monitoring of actual building performance and the comparison to the desired goals, and the taking of corrective action when needed to bring actual performance into alignment with the overall goals.

Benchmarking and Performance Tracking. The Executive Order requires that all state-owned buildings be benchmarked by 2007, and that the State develop retrofit plans required

for those buildings which rate low in the benchmarking exercise. The Executive Order also requires commissioning and retro-commissioning. The DGS intends to expand upon the traditional benchmarking tools, which can be limited to providing simple energy usage with little or no useful information as to what specific operational interventions or retrofits are needed. Utilizing new benchmarking methods based upon recent and ongoing work supported by CEC-PIER can be used to help target retro-commissioning and retrofit measures to different end-uses in the individual buildings. This new tool will differ from existing benchmarking tools by taking into account the presence of existing energy efficiency measures, building characteristics, organize energy, peak demand, cost data, operational data, retrofit and retro-commissioning opportunities and recent activities, along with control characteristics. In addition, the DGS can serve as a test site and model for implementation of the emergence and development of advanced benchmarking tools by providing a more detailed "view" into building performance parameters and quickly target for operators with the most promising strategies to reduce energy use.

Performance Monitoring and Tracking. The Executive Order identifies a variety of commissioning, retro-commissioning, and metering requirements for new and existing buildings. As currently laid out, this would result in a series of independent activities to be implemented for each building. Our intention is to build upon the DGS' ongoing energy efficiency measures by incorporating new standards of Performance Monitoring Specifications. These new standards would be based upon previous CEC-funded Research and Development projects that addressed benchmarking and performance tracking, along with the implementation of PIER-identified emerging technologies. Whereas the DGS has made a considerable investment toward implementing advanced metering technologies, this investment can be leveraged to provide more detailed information to support efficient building operations, including demand response. The DGS recognizes that additional assistance is needed to achieve the long-term goal that all DGS buildings have a real-time monitoring

capacity that not only informs and guides the day-to-day operations, but also becomes the basis for retro-commissioning and retrofit actions.

Specifications for enhanced performance monitoring systems will be developed to ensure that buildings and their energy systems are operated at their optimal efficiency. The DGS will collect, track, and evaluate energy performance data from emerging energy efficient technologies that could be implemented in State building models. Tracking the performance of each building in the agency's stock over time allows persistence of monitoring and the comparative effectiveness of utilizing different approaches and methodologies. Continuous monitoring would allow progress of the long-term performance targets while allowing employed processes to be assessed and reprioritized and updated if needed. Enhanced web-based performance monitoring systems could be used in organizing data collection and the archival of Leadership in Energy and Environmental Design, Existing Buildings, data in support of the certification process.

Commissioning and Retro-commissioning. Architectural Energy Corporation (AEC) has just started a project to define a process for new building commissioning for the DGS. There is a need for similar work to commence for retro-commissioning, which should address both the process and the tools.

There is also a need for a consistent approach employed for the initial commissioning and retro-commissioning, particularly as it relates to Title-24 and to the benchmarking tools described above. Utilizing a monitoring-based data collection system as described above would accrue the benefits of reduced costs and determine in advance the need and cost-effectiveness of periodic retro-commissioning. The DGS would work in conjunction with organizations such as Architectural Energy Commission and Portland Energy Conservation, Incorporated to develop the guidelines for retro-commissioning. Guidelines would include an organizational-level plan for the DGS that would address technical, financial, and managerial aspects of implementing monitoring-based commissioning in State buildings while drawing upon lessons learned from the CPUC-funded campus retro-commissioning and retrofit program

(the UC/CSU/IOU Program). The development of a "best practices" guide for building managers would assist in the implementation of monitoring-based commissioning practices. Additional benefits would be the development of a hands-on monitoring-based commissioning guide/tool-box for operators and technicians to use in the field. Commissioning efforts would develop comprehensive requirements specific to building type, for inclusion into Title-24, including commissioning plans and design review required for construction permits.

Demand Response. Demand response "capabilities" in State buildings are likely to be critical in the future even though there is not yet widespread agreement on the details as to how such a statewide system might operate. The ability of building managers to automatically shed load and see the immediate impacts is intrinsic in the controls optimization and performance monitoring capabilities described above. The development of an audit procedure to assess the suitability of each building for participation in demand response programs, including the identification of measures required to maximize the effectiveness and reliability of demand response procedures, either automated or manual. The evaluation of related control retrofit and retro-commissioning opportunities and the identification of buildings best suited for state-of-the-art demonstrations.

Training. Improved training of building operators and service technicians is increasingly being recognized as a key requirement for the efficient operation of buildings. Workforce training to develop in-house capabilities so that commissioning activities can be integrated with building operations activities is a key strategy to reduce costs and improve the persistence of commissioning measures. The DGS intends to identify the educational and training needs of building owners and construction and service contractors and prioritize those needs in relation to efficient operation of commercial and public buildings. The intent is to propose a set of programs to the CPUC that would better address the education and training needs across the commercial and public sectors.

Although the CPUC typically authorizes short-term programs, those programs should recognize that public agencies such as the DGS (as with many private owners) work on long-term

schedules and investment cycles to maintain and upgrade building performance. Even if the CPUC is constrained to fund specific programs on a short-term basis, the programs should be designed to support best practices for longer term life-cycle building management and operations. The CPUC has an obligation to ensure that its efficiency investments provide good return on the public's financial investment. The advanced metering, benchmarking, and performance tracking activities that we are advocating will not only help in reaching the 20 percent reduction goal; it would provide an effective "real time" indicator of progress toward that goal, thus confirming the value of some investments and guiding mid-course changes where those may be needed. In effect, by the design of this building management approach, these programs are designed to have their own merit and value element built into the program activity.

The DGS urges the CPUC to design its programs for 2006 and beyond to encourage State agencies and other building owner organizations to pursue the integrated approach to building operations as described above.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that I have by mail, and by electronic mail to the parties of which an electronic mail address has been provided; this day served a true copy of the original attached Comments of the Department of General Services, State of California, as it relates to Assigned Commissioner's Ruling requesting information in response to the Governor's Executive Order S-20-04 on all parties of record for Proceeding R01-08-028

Dated this 10th day of February, 2005, at West Sacramento, CA.

/s/ Jeff Henninger
Jeff Henninger, Manager
Building and Property Management Branch
Department of General Services
State of California